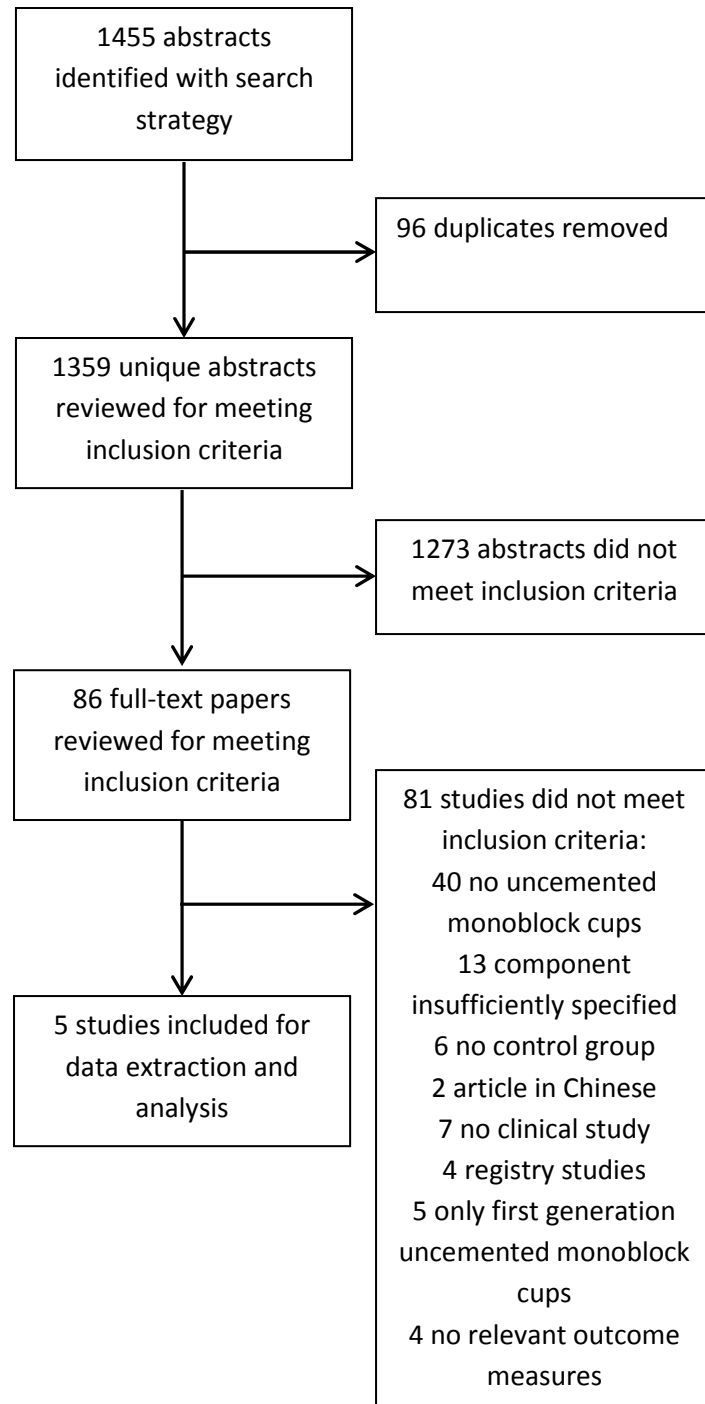


Appendix 4: Total hip replacements with an uncemented monoblock acetabular cup

- Flow diagram of included studies
- Study details 1 (aspects of internal validity)
- Study details 2 (aspects of external validity)
- Study reported outcomes
- References



Study details I (aspects of internal validity)											
Study	Study design	Allocation method and concealment	Blinding (surgeons/ patients/ assessors)	Prospective collection and assessment	Sample size needs clearly defined	Primary Outcome specified? (yes/no)	Intention -to-treat analysis? (yes/no)	Consecutive patients series? (yes/no)	Group comparability assessed?	Controlling for confounding?	Procedure period
Baad-Hansen, 2011	Randomized controlled trial	Computer generated randomization sequence, sealed opaque envelopes opened during surgery	Unclear	Yes	Yes	Yes (migration based on power calculation)	Yes	Unclear	No	Randomized design	2004
Della-Valle, 2004	Retrospective comparison of non-consecutive matched cohorts	Allocation unclear (likely surgeon's preference), concealment NA	NA	Retrospective inclusion, data collection and assessment	No	Yes, wear and osteolysis	NA	Unclear	Demo-graphics and pre-operative assessments	Restriction (on cup orientation) and matching of patients (implant materials and demo-graphics), no statistical correction for baseline differences in cup orientation	Unclear
Periasamy, 2011	Randomized controlled trial	Randomization method unclear, concealment unclear	Unclear	Yes	Yes	Yes (bone mineral density)	Unclear	Unclear	Demo-graphics and pre-operative assessments	Randomized design	2004 - 2006
Young, 2002	Retrospective comparison of non-consecutive matched cohorts	Allocation unclear (likely surgeon's preference), concealment NA	NA	Retrospective inclusion, data collection and assessment	Yes	Yes (annual wear rate based on power calculation)	NA	Unclear	Demo-graphics and pre-operative assessments	Matching (implant materials and demographics), no statistical correction for baseline differences in cup orientation	Unclear
Zerahn,	Randomized	Randomized using	Unclear	Yes	No	Yes, bone	No	No	Demo-	(Intended) randomized	January

2011	controlled trial	computer generated sequence in closed envelopes opened prior to surgery. However, imbalanced exclusion after randomization based on surgeon's preference	mineral density	graphics and pre-operative assessments	design, no statistical correction for between group differences	2001 – January 2003
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Study	Study details II (aspects of external validity)										
	No. Of replace- ments (no. of patients)	Mean age (SD, range)	Female (%)	Osteo- arthritis (%)	Mean length of FU (SD, Range)	Follow- up com- pletion (%)	Prosthesis brands (new vs conventional)	Manu- facturer	Site, surgeon	Hospital setting (designer/ university/ general)	Continent (country)
Baad- Hansen, 2011	60 (60)	62 (NA, 52-76)	43.3	100	NA (NA, 2 – NA)	83.3	Uncemented Monoblock cup with trabecular tantalum surface vs uncemented modular Trilogy cup (Ti fiber mesh surface)	Zimmer and Zimmer	Single center, single surgeon	University	Denmark (Europe)
Della- Valle, 2004	130 (127)	65.0 (NA, 37-87)	66.1	100	5.8 (NA, 5–7.8)	NA	Uncemented Implex monoblock cup <i>versus</i> uncemented modular Trilogy cup (Ti fiber mesh surface)	Implex and Zimmer	Single center, multiple surgeon	University	North America (U.S.)
Periasamy, 2011	55 (55)	71.6 (NA, 59-83)	67.3	NA	NA (NA, 2-NA)	98.2	Uncemented trabecular metal (TMT) Acetabular cup <i>versus</i> cemented Contemporary flanged polyethylene cup	Zimmer and Stryker	Single center, NA	General	Europe (united kingdom)
Young, 2002	82 (79)	NA	NA	NA	5.4 (NA, 3.8-8.0)	100	Uncemented nonmodular metal-backed porous coated cup <i>versus</i> uncemented modular metal-backed backed porous coated Duraloc cup	DePuy	Single center, NA	General	North America (U.S.)
Zerahn, 2011	219 (219)	67.5 (10.8, 18-87)	60.4	NA	4.0 (NA, 0-NA)	48.4	Uncemented monoblock Asian cup <i>versus</i> uncemented modular Universal porous coated Ringloc cup	Biomet Inc.	Single center, multiple surgeons	University	Europe (Denmark)

Study	Quality	Outcome	Harris Hip Score (mean, SD / range)		Oxford Hip Score (mean, SD / range)		WOMAC (mean, SD / range)		SF-12 (mean, SD / range)		Preference (count, proportion)	
			Mono- block	Modular	Mono- block	Modular	Mono- block	Modular	Mono- block	Modular	Mono- block	Modular
Baad-Hansen, 2011	Moderate to high	Preoperative	50 (28-70)	48 (34-64)	NA	NA	NA	NA	NA	NA	NA	NA
		Postoperative	92 (76-100)	95 (77-100)	NA	NA	NA	NA	NA	NA	NA	NA
Della-Valle, 2004	Low	Preoperative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Postoperative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Periasamy, 2011	Low to moderate	Preoperative	Done but NA	Done but NA	Done but NA	Done but NA	Done but NA	Done but NA	Done but NA	Done but NA	NA	NA
		Postoperative	Done but NA	Done but NA	Done but NA	Done but NA	Done but NA	Done but NA	Done but NA	Done but NA	6 (7%)	8 (9%)
Young, 2002	Low	Preoperative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Postoperative	NA	NA	NA	NA	NA	NA	NA	NA	14 (10.1%)	12 (8.7%)
Zerahn, 2011	Low	Preoperative	NA	NA	38.6 (7.6)	40.3 (9.4)	NA	NA	NA	NA	NA	NA
		Postoperative	NA	NA	16.9 (5.7)	19.0 (8.1)	NA	NA	NA	NA	NA	NA

NA = not available (not applicable or not provided), * significant difference

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Young AM, Sychterz CJ, Hopper RH Jr, Engh CA. Effect of acetabular modularity on polyethylene wear and osteolysis in total hip arthroplasty. *J Bone Joint Surg Am*. 2002 Jan;84-A(1):58-63.

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Schneider W, Knahr K. Total hip replacement in younger patients: Survival rate after avascular necrosis of the femoral head. *Acta Orthopaedica Scandinavica* 75 (2):142-146, 2004.

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Engh CA, Hopper RH Jr, Engh CA Jr. Long-term porous-coated cup survivorship using spikes, screws, and press-fitting for initial fixation. *J Arthroplasty*. 2004 Oct;19(7 Suppl 2):54-60

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